

Appln. No.: 10/554,028
Amendment Dated July 30, 2009
Reply to Office Action of June 18, 2009

EMD-126US

Amendments to the Drawings:

The attached sheet of drawings includes a change to Figure 11. This sheet replaces the original sheet.

Attachment

Remarks/Arguments:

These remarks are responsive to the Final Office Action of June 18, 2009. Applicants acknowledge with thanks that the claim rejections under 35 U.S.C. Section 102(b) over Smith (WO00/04778), under Section 102(b) over Lerouge (US 5,549,718), and under Section 102(e) over Bonnell (ICID Abstract F-21) have been withdrawn.

The specification has been amended as described above to correct clerical errors in referring to the figures. No new matter is added by these amendments.

Fig. 11 has been amended to correct a clerical error, namely, in the caption of the figure, "spary" has been changed to --spray--. No new matter has been added.

Claim Amendments

Claims 9-13 and 16 are cancelled. Claims 17-30 are newly added. Claim 8 is amended to clarify that the method comprises applying an effective amount of at least one lipo-chitooligosaccharide with one or more agriculturally acceptable carrier to *foliage* of a plant. Support for this amendment is found on page 3, lines 27-28 of the transmitted PCT application, WO 2004/093542A1. Claim 8 is further amended to separate the effect of initiating early flowering, budding or fruiting (now in amended claim 8) from the effect of increasing flower numbers or associated yield (now in new claim 21). Support for new claim 21 is found in original claim 8. This amendment was made for clarification.

New claims 18, 20, 23, 25, 26, and 27 are directed to concentration ranges of lipo-chitooligosaccharide applied to plant foliage. Support for these claims is found in the specification in Tables 1-5, 5A, 6, 7, 8, 2-2, 2-3, 2-4, and 2-5.

New claims 17 and 22 are directed to families of nonleguminous plants that may be treated according to claims 8 and 21. Support for these claims is found in the specification in page 4, lines 35-36. New claims 19, 24, and 30, which are dependent upon claims 8 and 21, specify that the treated plant is a tomato plant. Support for these claims is found in Tables 1-7, 2-1, and 2-5.

New claims 28 and 29 are directed to a method for initiating early flowering, budding or fruiting (claim 28) and a method for increasing flower number or associated yield (claim 29) in

a nonleguminous plant comprising applying to foliage of the plant an effective amount of the composition of claim 7. Support for these claims is found in Tables 1-5, 5A, 6, 7, 8, 2-2, 2-3, 2-4, and 2-5.

No new matter is added by the above amendments and new claims.

Discussion of claim rejections

Claims 7-13 and 16 stand rejected under 35 U.S.C. § 102(b) as anticipated by Smith (WO 01/26465). Page 3 of the Office Action states that "the WO patent number for this rejection has been corrected to read WO 01/26465 instead of previously cited WO 00/04778." Applicants therefore understand that the rejection under WO/04778 has been withdrawn.

As noted in the Office Action, Smith teaches a method for increasing photosynthesis and/or yield in plants. However, Smith discloses a method for increasing yield *only in soybean*, which is a leguminous plant. Applicants' claims are directed specifically to *nonleguminous* plants. Smith does not disclose any effects of LCO on budding, flowering, fruiting, or yield in nonleguminous plants. Smith discloses only the effects of LCO on *photosynthesis* in nonleguminous plants. The Description of Drawings (pages 16-17), Examples 2-6, Tables 1-6, and Figures 1-9 of D1 support these statements. Non-leguminous plants do not undergo nodulation in the presence of LCOs and one of skill in the art would not have predicted that LCOs would have the substantial effects on flowering, fruiting, and yield in nonlegumes that Applicants have demonstrated.

The Office Action states that "it is inherent that both inventions [Smith's and Applicants'] will yield the same result, i.e., the flowering and fruiting of non-legume plants." However, MPEP 2112 IV states, "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Quoting *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). The Office Action provides no reasoning to explain why an effect on photosynthesis necessarily yields an effect on the timing and abundance of flowering or fruiting. Furthermore, Smith does not suggest any reason why an effect on photosynthesis would necessarily lead to earlier or more abundant budding, flowering or fruiting, and one of skill in the art would not

predict that the timing and abundance of flowering and fruiting would necessarily flow from the disclosed effect on photosynthesis.

Page 3 of the Office action further states that "it is also inherent that instant method of harvesting results in an increased yield...". Although Applicants do not agree that this statement is correct, claims 10-13, which were directed to harvesting, and claims 9 and 16 have been cancelled. Therefore, the rejection of these claims is moot.

Therefore, because Smith does not disclose or suggest any effects of LCO on timing or amount of budding, flowering, fruiting, or yield in non-legumes, claims 7, 8, 14 and 15 are not anticipated by Smith, WO 01/26465. Accordingly, Applicants request that the rejection of these claims over Smith be withdrawn.

Claims 7-13 stand rejected under 35 U.S.C. § 102(e) as anticipated by Prithiviraj. The Prithiviraj reference is a journal article, not a patent, and Applicants request clarification of why it is considered a Section 102(e) reference. Applicants will, nonetheless, address this rejection.

Claims 9-13, and 16 have been cancelled and the rejection is moot with respect to these claims. As stated in the Office Action on page 4, Prithiviraj discloses experiments on the effects of LCOs on *germination* and *emergence* in nonlegumes (corn, cucumber, cotton). However, in these experiments on nonlegumes, LCOs are, of necessity, applied to *seeds or to soil* (Col. 2, p. 438 and Col. 1, page 439), because, in order to apply LCOs to a "plant", the plant must already have germinated and emerged. Furthermore, Prithiviraj does not disclose any experiments on or effects of LCO applied to foliage of nonlegumes on timing or abundance of budding, flowering, fruiting, or yield, and, therefore, does not anticipate Applicants' claims.

For these reasons, Applicants respectfully request that the rejection of claims 7, 8, 14, and 15 over Prithiviraj be withdrawn.

Claims 14 and 15 stand rejected under Section 103(a) as unpatentable over Smith WO 00/04778 and Smith WO 01/26465. The Office Action states, "The references teach all that is recited in claims 14 and 15 except for the administration of the claimed concentration ranges of LCO." Claims 14 and 15 depend from claim 8. As discussed above, Smith WO 01/26465 does not disclose or suggest all the elements of claim 8. Smith WO 00/04778 cannot compensate for these missing elements. Neither of the Smith patent applications discloses an effect of LCOs

applied to foliage of a nonleguminous plant on the timing of budding, flowering, or fruiting, as required by claim 8. Therefore, neither of the Smith references, nor the combination of the two Smith references, discloses all the elements of claims 14 and 15.

In addition, "[i]f a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." MPEP 2143.01(V), *citing In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984). WO 00/04778 discloses the effect of LCO seed treatment on germination of seeds and seedling emergence and growth in leguminous plants. WO 00/04778 does not disclose foliar treatment of any nonleguminous plant. As mentioned above, foliar treatment can only be applied after germination and emergence. Accordingly, it is impossible to modify WO 01/26465 (foliar application) to achieve the result of WO 00/04778 (effect on germination or emergence). Similarly, the methods for examining germination and emergence (WO 00/04778) cannot be modified to examine photosynthesis (WO 01/26465), because the seed and the emerged seedling lack true leaves. Therefore, one of skill in the art would not be motivated to combine the two Smith references because modifying either with the methods of the other would render each invention of Smith unsatisfactory for its intended purpose.

For each of these reasons, the Smith references do not render Applicants' claims unpatentable under Section 103(a). Therefore, Applicants request that the Section 103(a) rejection of claims 14 and 15 be withdrawn.

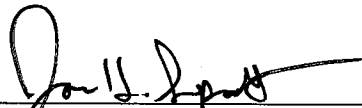
Appln. No.: 10/554,028
Amendment Dated July 30, 2009
Reply to Office Action of June 18, 2009

EMD-126US

Conclusion

For the reasons discussed above, Applicants respectfully submit that the pending claims are in condition for immediate allowance and a notice to this effect is solicited. The Examiner is invited to telephone Applicants' attorney if it is believed that a telephonic interview would expedite prosecution of the application.

Respectfully submitted,



Jonathan H. Spadt, Reg. No. 45,122
Joy Mulholland, Reg. No. 47,810
Attorneys for Applicant

Dated: July 30, 2009

P.O. Box 980
Valley Forge, PA 19482
(610) 407-0700

The Director is hereby authorized to charge or credit Deposit Account No. **18-0350** for any additional fees, or any underpayment or credit for overpayment in connection herewith.

L_H:\NRPORTBL\RP\LISA\489793_1.DOC